

# Work Order ID 62310

September 27, 2010 7:54:05 AM

Page 1

Item ID: D206-667-103

Accept

Setup Start

Revision ID:

Stop

Item Name: Crosstube Fwd

Start Date: 9/27/10 Start Qty: 1.00

Cust Item ID:

Required Date: 10/15/10 Req'd Qty: 1.00

Customer:

Reference:

Run Start

Approvals: Process Plan: *CL* Date: *10/9/27* Tooling: \_\_\_\_\_ Date: \_\_\_\_\_

Stop

QC: \_\_\_\_\_ Date: \_\_\_\_\_ SPC (Y/N): \_\_\_\_\_ Date: \_\_\_\_\_

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
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Draw Nbr

Revision Nbr

D206-667-143

Rev C

0.00



DOCUMENT CONTROL

DC

Memo

0.00

Document Control

Photocopy bluefile and create labels as per PPP D206-667-103 CHG004

*8 10/10/03*

110

Pick Kit

0.00



Packaging

Packaging

Memo

0.00

Packaging

*EL 10-10-26*

*(X1)*

120

BENDING MACHINE - CROSSTUBES

0.00



CNC Bend 2

Memo

0.00

CNC Alpha 160 Bender

Bend tube as per Dwg D206-667-143 using CNC bender program

*EL 10-10-26*

*(X1)*

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
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**NOTE:** Date & initial all entries

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QC: \_\_\_\_\_ Date: \_\_\_\_\_ SPC (Y/N): \_\_\_\_\_ Date: \_\_\_\_\_

Sequence ID/  
Work Center IDOperation  
DescriptionSet Up/  
Run Hours

Tool ID

Tool #

Plan  
CodeAccept  
QtyReject  
QtyReject  
NumberInsp.  
Stamp

130

QC15- Crosstube Dimensional Check

0.00



QC

Memo

0.00

Quality Control

*50/10/26 / 10.10.26*

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

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Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
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140



Crosstubes

Crosstubes

0.00

0.00

**Memo**

1-Drill holes &amp; ream using drill Jig DT8541 &amp; DT8542 as per Dwg D206-667-143. Drill all (3) top holes.

3-Flip tube and switch drilling Jigs from right to left, left to right. Locate Jigs off existing holes using "T" pins.

4-Drill pilot holes using drill Jig DT8541 &amp; DT8542 as per Dwg D206-667-143. Drill only the top (2) holes.

5-Drill pilot holes as per Dwg D206-667-143. Drill only the top (2) holes.

6-Drill Fwd rivet holes using drill Jig DT8787FWD as per Dwg D206-667-143. Note: Fwd side has 3x top holes.

7-Drill Aft rivet holes using drill Jig DT8787AFT as per Dwg D206-667-141.

8-C'sink holes as per Dwg D206-667-143. Allow rivet to sit below surface to compensate for paint.

9 -Scribe part # and batch # using vibrating stylus as per Dwg D206-667-143 Inside of Cuff(Donot engrave on outside of tube)

10-Deburr &amp; Inspect for surface damage. Repair damage within limits as per Dwg D206-667-143

SAD  
10-10-07

W/O:		WORK ORDER CHANGES					
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Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

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[illegible]

September 27, 2010 7:54:05 AM

**Accept**

[illegible]**Setup Start**[illegible]

**Stop**

**Cust Item ID:**

**Customer:**

Run Start



**Stop**

100-443887-1

QC: \_\_\_\_\_ Date: \_\_\_\_\_ SPC (Y/N): \_\_\_\_\_ Date: \_\_\_\_\_

**Insp.  
Stamp**

0.00

**Abstract**

HandFXtube

## Memo

0.00

SAD  
10-10-27

①

0.00

[illegible]

QC

## Memo

0.00

8/10/10/29

0.00



QC

## Memo

0.00

8/2/01/01/78

— (X)

W/O:		WORK ORDER CHANGES					
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Run Start



QC: \_\_\_\_\_ Date: \_\_\_\_\_ SPC (Y/N): \_\_\_\_\_ Date: \_\_\_\_\_

Stop



Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
180 	Outsource process - NDT per QSI038 4.1	0.00							
Outsource2	Memo	0.00							
Outsource process - NDT	CROSSTUBES								
190 	Packaging	0.00							
Packaging	Memo	0.00							
Packaging	Ensure copy of NDT results attached to work order.								
200 	QC5- Inspect part completeness to step on W/O	0.00							
QC	Memo	0.00							
Quality Control									

R/o: 12828

C/L 10/10/28 (1)

M 10 10 29 (1)

W/O:		WORK ORDER CHANGES					
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Stop



QC: \_\_\_\_\_ Date: \_\_\_\_\_ SPC (Y/N): \_\_\_\_\_ Date: \_\_\_\_\_

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
210		0.00							
	SprayPaint								
SprayPaint	Memo	0.00							
Spray Painting	1-Prime inside and outside crosstube as per QSI 005 4.2								
	2-Paint outside crosstube with White Imron as per QSI 005 4.2								
	PRIME:								
	Start Time: 7:00								
	Finish Time: 8:00								
	PAINT:								
	Start Time: 12:00								
	Finish Time: 1:00								
220	QC14- Inspect Spray Paint	0.00							
QC	Memo	0.00							
Quality Control	Wrap in plastic bag to protect from scratches								

MA 10 10 29 ①

BT 10-11-01 ①

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

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230

0.00



Crosstubes

Crosstubes

Memo

0.00

(ASSEMBLE AS PER DWG D206-667-143)  
1-Install support using 0.03" to 0.06" thick layer of magnobond 6398 per QSI 015. Let cure for 12h after installation and prior to packaging. Note: (2) Aft holes should be facing up.  
A/R Magnobond 6398: 115580 exp: 01/2011

2-Install supports and clamps as per Dwg D206-667-143. Torque clamps to 80-100 in lb

3-Install nut plates as per Dwg D206-667-143. Touch-up rivet heads with Imron paint.

ml 10 11 01 1

ml 10-11-02 1

240

QC5- Inspect part completeness to step on W/O

0.00



QC

Memo

0.00

Quality Control

8 10/11/02

10

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

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Stop



QC: \_\_\_\_\_ Date: \_\_\_\_\_ SPC (Y/N): \_\_\_\_\_ Date: \_\_\_\_\_

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
--------------------------------	--------------------------	----------------------	---------	--------	--------------	---------------	---------------	------------------	----------------

250

Pick Kit

0.00



Packaging

Memo

0.00

Packaging

10/11/13

260

QC4- 100% Inspect kits for completeness

0.00



QC

Memo

0.00

Quality Control

8/10/13

10

270

Packaging

0.00



Packaging

Memo

0.00

Packaging

Identify and pack for shipping as per PPP D206-667-103

Location: 63

PPP Rev: D3

10/11/13

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

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Stop



QC: \_\_\_\_\_ Date: \_\_\_\_\_ SPC (Y/N): \_\_\_\_\_ Date: \_\_\_\_\_

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
280	QC21- Final Inspection - Work Order Release	0.00							
QC	Memo	0.00							
Quality Control									

CK 10/11/02

mf

10-11-3

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

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Page 1

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Parent Item Name: Crosstube Fwd



Start Date: 9/27/10

Required Date: 10/15/10

Start Qty: 1.00

Required Qty: 1.00

Comments: IPP Rev:F 05.09.01 Add holes for compatibility with Bell Skidtubes KJ/JLM  
 IPP Rev:G 08-06-03 update as per DSI9415 (ECN1198) DD verified by:  
 IPP Rev: H 08.11.17 QC5 was QC6 at step 12 KJ verified by: EC  
 IPP Rev:I 08-12-15 add magnobond DD verified by:EC  
 IPP Rev J 09.01.06 ECN 08-562 EC verified by: DD  
 IPP Rev:K 09-01-19 as per DSI9439 DD verified by:EC

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status
D206-667-103TRN		Manufactured	No			110	Each	2.0000	1	1			



Crosstube Turning DetailL

B62629

Location	Loc Qty	Loc Code
LG	2	
61426	1	
61428	1	

D2873-043 Manufactured No



Nut Plate Assembly

230 Each 32.0000 2 2



10-11-02

Location	Loc Qty	Loc Code
LG	12	
57337	12	
ST	20	
60981	20	

D2873-045 Manufactured No



Nut Plate Assembly

230 Each 28.0000 2 2



10-11-02

Location	Loc Qty	Loc Code
LG	28	
57336	8	
60982	20	

B#62378

W/O:		WORK ORDER CHANGES					
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Start Date: 9/27/10

Required Date: 10/15/10

Start Qty: 1.00

Required Qty: 1.00

D2891-1 Manufactured No

230 Each

57.0000

2 2



2.25 Support



ml 10 11 01

## Location

## Loc Qty

## Loc Code

LG

57

46159

7

50952

18

53773

20

55786

12

D3595-063-395 Manufactured No

230 Each

22.0000

4 4



RUBBER CUSHION

D3595-063-450 B#61465  
Cut to Length



ml 10 11 01

## Location

## Loc Qty

## Loc Code

FP

10

44667

10

ST

12

60585

12

RUBBER CUSHION .63" x 3.95" (4)

MS20601-AD4W8

Purchased No

230 Each

202.0000

14 14



ml 10 11 02

RIVET

## Location

## Loc Qty

## Loc Code

ST322

202

108521

98

112203

104

W/O:		WORK ORDER CHANGES					
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Start Date: 9/27/10

Required Date: 10/15/10

Start Qty: 1.00

Required Qty: 1.00

MS21920-20

Purchased

No

230

Each

93.0000

4

4



Clamp (per MIL-DTL-8783C)

Location

Loc Qty

Loc Code

LG

93

112624

2

114687

1

114779

14

115057

26

115736

50

AN5-30A

Purchased

No

250

Each

86.0000

4

4



BOLT

Location

Loc Qty

Loc Code

ST339

86

112933

11

114437

25

114941

50

AN5-32A

Purchased

No

250

Each

332.0000

4

4



Bolt

Location

Loc Qty

Loc Code

ST340

332

114056

72

114405

50

115016

50

115108

50

115589

60

115698

50

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Shop Packet Print

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Start Qty: 1.00

Required Qty: 1.00

AN5-7A

Purchased

No

250

Each

160.0000

10

10



Bolt



1115938 10/11/35

Location

Loc Qty

Loc Code

ST337

160

113149

160

AN960JD516

NAS1149D0563J

Purchased

No

250

Each

34.0000

18

18



Washer



1114742 10/11/35

Location

Loc Qty

Loc Code

ST

34

103694

18

107534

12

109287

4

AN970-4

Purchased

No

250

Each

110.0000

12

12



Washer



10/11/35

Location

Loc Qty

Loc Code

ST349

110

115266

10

115531

50

115621

50

MS21042L5

Purchased

No

250

Each

957.0000

4

4



Nut



10/11/35

Location

Loc Qty

Loc Code

ST139

26

114813

26

ST300

931

115156

431

115594

500

4

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Shop Packet Print

Page 4

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

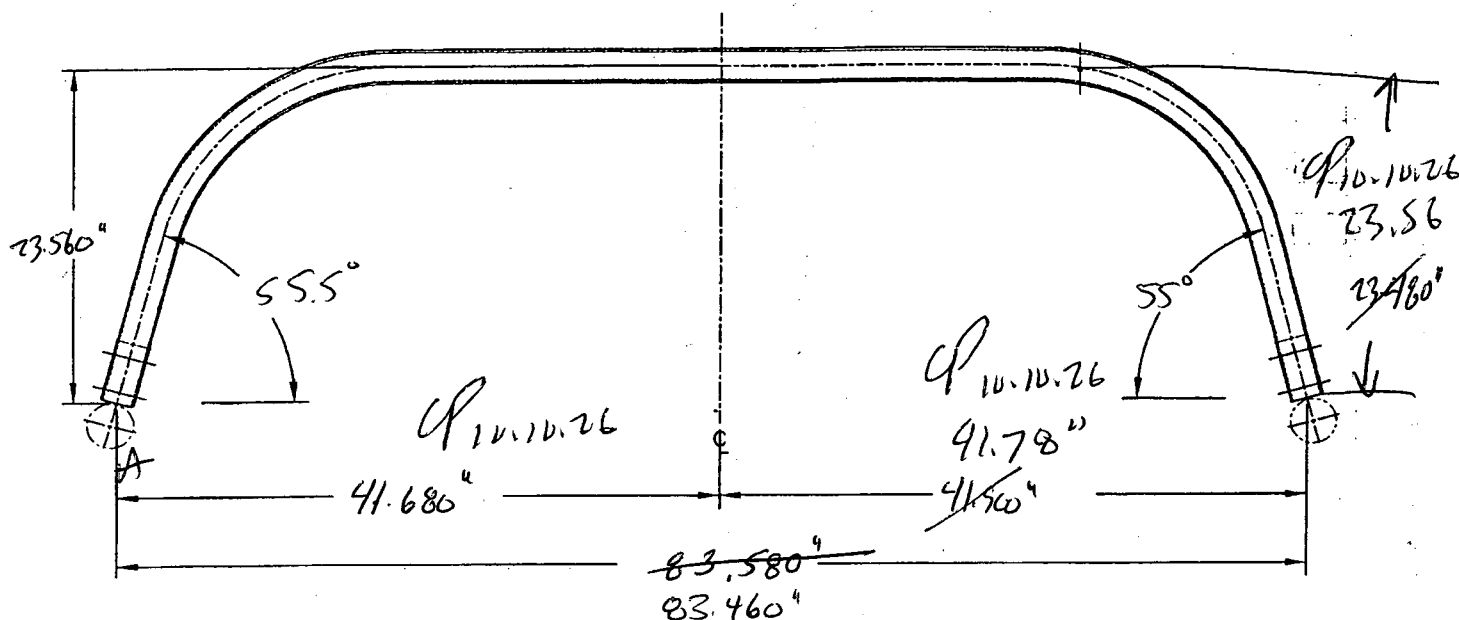
Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

**NOTE:** Date & initial all entries

DART AEROSPACE LTD		Work Order:	62310
Description: Crosstube High Fwd (206L)		Part Number:	D206-667-103
Inspection Dwg: D206-667-143 Rev: C		Page 1 of 1	

Required Dimension	Min	Max
Height	23.39	23.65
1/2 Span	41.79	42.05
Angle	54	56
Total Span	83.58	84.10



Comments
Tube is narrow; Acceptable φ 10.10.26

QC15 Inspection	φ 10.10.26 / S
Date	10.10.26

Rev	Date	Change	Revised by	Approved
A	07.02.06	New Issue	KJ/JM	
B	09.06.26	Dimensions updated per Dwg Rev C	KJ	
C	09.10.22	Minimum height dimension revised	KJ	

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

**NOTE:** Date & initial all entries

Item	Qty -143	Part Number	Description
1	X	D206-667-143	CROSSTUBE ASSEMBLY (206L HIGH FWD)
2	1	D6002-115	CROSSTUBE
3	2	D2873-043	NUT PLATE
4	2	D2873-045	NUT PLATE
5	2	D2891-1	SUPPORT
6	4	D3595-063-395	RUBBER CUSHION
7	4	MS21920-20	CLAMP (OR MS21920-21)
8	14	MS20601AD4W8	RIVET (OR NAS9302B-4-8)
9	A/R	MAGNOBOND 6398	ROCKWELL SPECIFICATION RBO-120-023 ADHESIVE (TEXTRON/BELL SPEC. 299-947-100, TYPE II, CLASS 2 ADHESIVE)

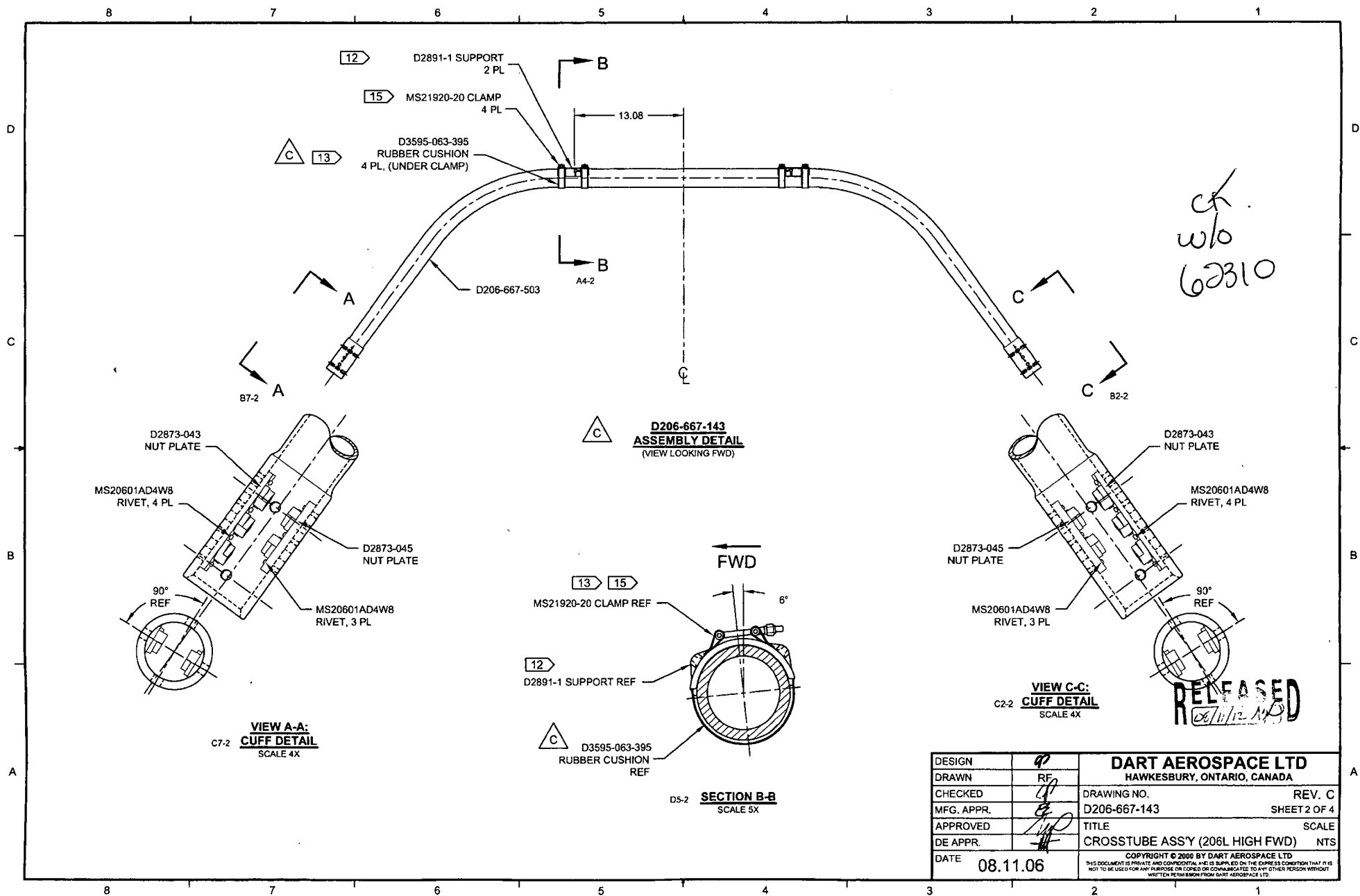
C21019127  
W10:62310

#### GENERAL NOTES:

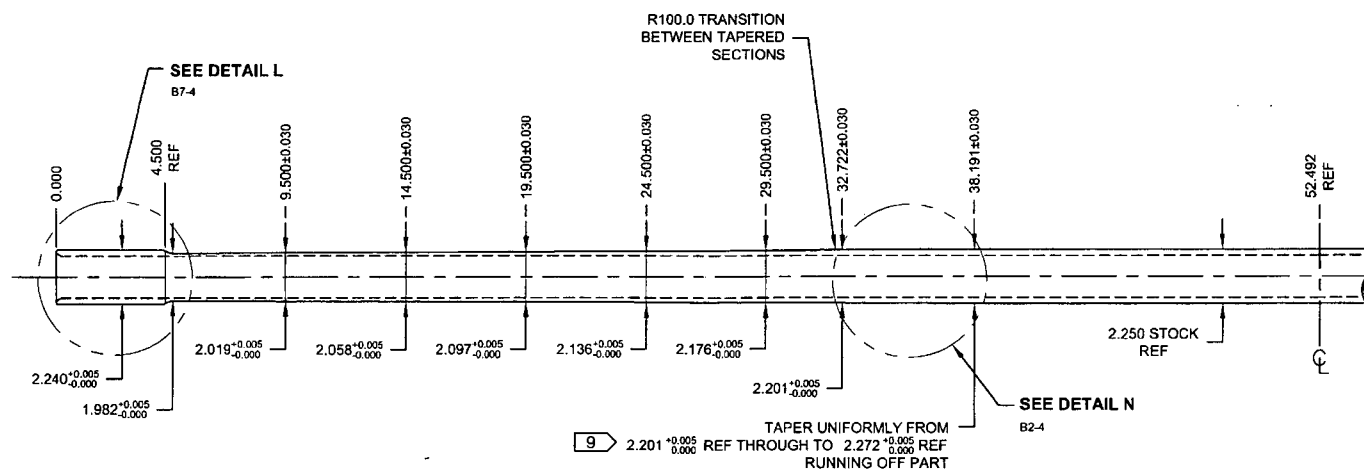
- MATERIAL: MANUFACTURED FROM D6002-115  
FINISHED LENGTH = 104.98±0.020
- FINISH: CHEMICAL CONVERSION COAT PER DART QSI 005 4.1  
PRIME INSIDE AND OUTSIDE PER DART QSI 005 4.2  
PAINT OUTSIDE PER DART QSI 005 4.2
- TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED.
- UNITS: INCHES UNLESS OTHERWISE NOTED.
- BREAK SHARP EDGES: 0.005 TO 0.010 MAX.
- IDENTIFICATION: SCRIBE DART PART NUMBER "D206-667-143" AND BATCH NUMBER ON INSIDE OF CUFF USING VIBRATING STYLUS.
- WEIGHT: 15.5 lbs
- PART IS SYMMETRIC ABOUT CENTERLINE.
- RUN CUTTER OFF PART WHERE INDICATED. BLEND OUT EDGE LONGITUDINALLY. TRANSITION SHOULD BE SMOOTH.
- BEND PROGRESSIVELY WITH A MINIMUM OF 10 PASSES. MAXIMUM TUBE FLATTENING DUE TO BENDING IS 6% BASED ON O.D.
- LIQUID PENETRANT INSPECT OUTSIDE SURFACE OF CROSSTUBE PER QSI 038.
- INSTALL D2891-1 SUPPORT USING 0.03" TO 0.06" THICK LAYER OF MAGNOBOND 6398 PER QSI 015. LET CURE FOR 12 HOURS AFTER INSTALLATION AND PRIOR TO PACKAGING.
- INSTALL MS21920-20 CLAMPS (OR -21) WITH D3595-063-395 RUBBER CUSHIONS TO SECURE THE D2891-1 SUPPORT ON TOP SIDE OF THE CROSSTUBE. ENSURE CLAMP MECHANISMS ARE LOCATED ON CROSSTUBE SUPPORTS.
- EXTREME CARE MUST BE TAKEN TO PROTECT THE OUTSIDE SURFACE OF THE TUBE. THE OUTSIDE SURFACE MUST BE SMOOTH AND FREE FROM SURFACE DEFECTS SUCH AS SCRATCHES, NICKS, OR DENTS. DEFECTS UP TO 0.005" MAY BE BLENDED OUT LONGITUDINALLY. CIRCUMFERENTIAL GRIND MARKS ARE UNACCEPTABLE.
- TORQUE CLAMPS 80 TO 100 IN-LB. ENSURE AT LEAST 1.5 THREADS ARE SHOWING IN SAFETY AND THAT NUT HAS NOT BOTTOMED-OUT AFTER TORQUING.

RELEASED

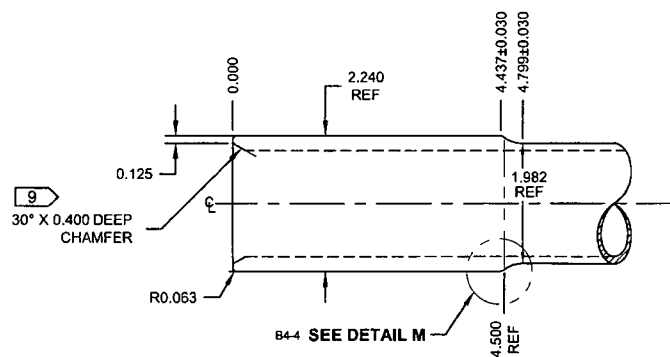
C	REVISE GENERAL NOTES/PART LIST (ZN D7-1): REORGANIZED VIEWS AND REFORMATTED DRAWING TO CURRENT STANDARDS. D3595-063-395 WAS D2856-400-694 (ZN D6-2 & A5-2); REMOVED REF. & ADD TOLERANCE (ZN D3-3, C4-3, C5-3); RELOCATED FLAG #6 (ZN A8-3) PER NCR 210; MOVED TURNING DETAIL & UPDATED TOLERANCE TO SHEET 4.	RF	08.11.06
B	ADD HOLES AND NUT PLATES FOR COMPATABILITY WITH BHT/AA SKUDTUBES	PH	05.07.26
A	NEW ISSUE	CP	00.11.17
REV.	DESCRIPTION	BY	DATE
DESIGN	RF	<b>DART AEROSPACE LTD</b> HAWKESBURY, ONTARIO, CANADA	
DRAWN	RF	DRAWING NO.	REV. C
CHECKED	RF	D206-667-143	SHEET 1 OF 4
MFG. APPR.	RF	TITLE	SCALE
APPROVED	RF	CROSSTUBE ASS'Y (206L HIGH FWD)	NTS
DE APPR.	RF	COPYRIGHT © 2000 BY DART AEROSPACE LTD THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD.	
DATE	08.11.06		



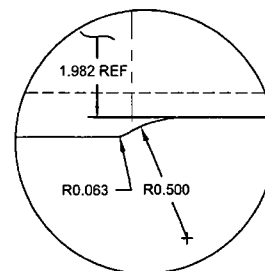




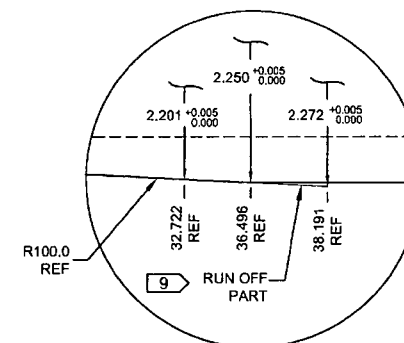
**TURNING DETAIL**



**DETAIL L:  
CROSSTUBE CUFF**  
D7-4 NOT TO SCALE



**DETAIL M:  
CUFF TRANSITION**  
A6-4 NOT TO SCALE



**DETAIL N:  
TAPER RUN-OFF**  
C4-4 NOT TO SCALE

**RELEASED**

DESIGN	90	<b>DART AEROSPACE LTD</b>
DRAWN	RF	HAWKESBURY, ONTARIO, CANADA
CHECKED	JP	DRAWING NO. REV. C
MFG. APPR.	JP	D206-667-143 SHEET 4 OF 4
APPROVED	JP	TITLE SCALE
DE APPR.	JP	CROSSTUBE ASS'Y (206L HIGH FWD) NTS
DATE	08.11.06	COPYRIGHT © 2000 BY DART AEROSPACE LTD
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## 5.0 PARTS LIST

Item	Qty -011	Qty -013	Qty -015	Qty -101	Qty -201	Qty -103	Qty -203	Qty -105	Qty -205	Part Number	Description
	X									D206-667-011	SPACER BLOCK KIT
		X								D206-667-013	NUT PLATE KIT (-101/-103/-105/-203/-205)
			X							D206-667-015	NUT PLATE KIT (-201)
				X						D206-667-101	CROSSTUBE INSTALLATION, 206A/B HIGH FWD
					X					D206-667-201	CROSSTUBE INSTALLATION, 206A/B HIGH AFT
						X				D206-667-103	CROSSTUBE INSTALLATION, 206L/L-1/L-3/L-4 HIGH FWD
							X			D206-667-203	CROSSTUBE INSTALLATION, 206L/L-1/L-3/L-4 HIGH AFT
								X		D407-667-105	CROSSTUBE INSTALLATION, 407 HIGH FWD
									X	D407-667-205	CROSSTUBE INSTALLATION, 407 HIGH AFT
1				1						D206-667-141	CROSSTUBE ASSEMBLY, 206A/B HIGH FWD
2					1					D206-667-241	CROSSTUBE ASSEMBLY, 206A/B HIGH AFT
3						1				D206-667-143	CROSSTUBE ASSEMBLY, 206L/L-1/L-3/L-4 HIGH FWD
4							1			D206-667-243	CROSSTUBE ASSEMBLY, 206L/L-1/L-3/L-4 HIGH AFT
5								1		D407-667-145	CROSSTUBE ASSEMBLY, 407 HIGH FWD
6									1	D407-667-245	CROSSTUBE ASSEMBLY, 407 HIGH AFT
10				*2	*2	*2		*2		D2891-1	SUPPORT
11							*2			D2892-1	SUPPORT
12									*1	D2894-1	SUPPORT
13				*2	*2	*2		*2		D2856-400-694	ABRASION STRIP
14							*2		*2	D2856-400-773	ABRASION STRIP
15									*1	D2856-600-851	ABRASION STRIP
16				*4	*4	*4		*4		MS21920-20	CLAMP
17							*4		*4	MS21920-22	CLAMP
18									*2	MS21920-24	CLAMP
19				4	4	4		4		AN5-32A	BOLT
20							4		4	AN5-34A	BOLT
21				4	4	4	4	4	4	MS21042L5	NUT (OR MS21042-5)
22				8	8	8	8	8	8	AN960JD516	WASHER
23									*2	D3190-1	CHAFING SHIELD
30	8									AN4-6A	BOLT
31	8									AN4-7A	BOLT
32	16									AN960JD416	WASHER
33	2									D3193-041	SPACER BLOCK ASSEMBLY
40		2		*2		*2	*2	*2	*2	D2873-043	NUT PLATE
41		2		*2		*2	*2	*2	*2	D2873-045	NUT PLATE
42			2		2					D2872-043	NUT PLATE
43			2		2					D2872-045	NUT PLATE
44		10		10		10				AN5-7A	BOLT
45		10	10		10		10	10	10	AN5-10A	BOLT
46		4	4	4	10	4		4		AN5-30A	BOLT
47		4					4		4	AN5-32A	BOLT
48		18	18	10	12	10	10	10	10	AN960JD516	WASHER
49		4	4		6					MS21042L5	NUT (OR MS21042-5)

\*REFERENCE ONLY. PARTS ARE INCLUDED IN D206-667-141/241/143/243, & D407-667-145/245 ASSEMBLIES ABOVE

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Revision: C

Date: 05.07.26

# DART SERVICE INSTRUCTION

TO AMEND INSTALLATION INSTRUCTIONS IIN-D206-667 REV. C  
AND INSTRUCTIONS FOR CONTINUED AIRWORTHINESS ICA-D206-667 REV. 2

REF CANADIAN STC: SH01-5  
REF FAA STC: SR01304NY  
REF EASA STC: EASA.IM.R.S.01179

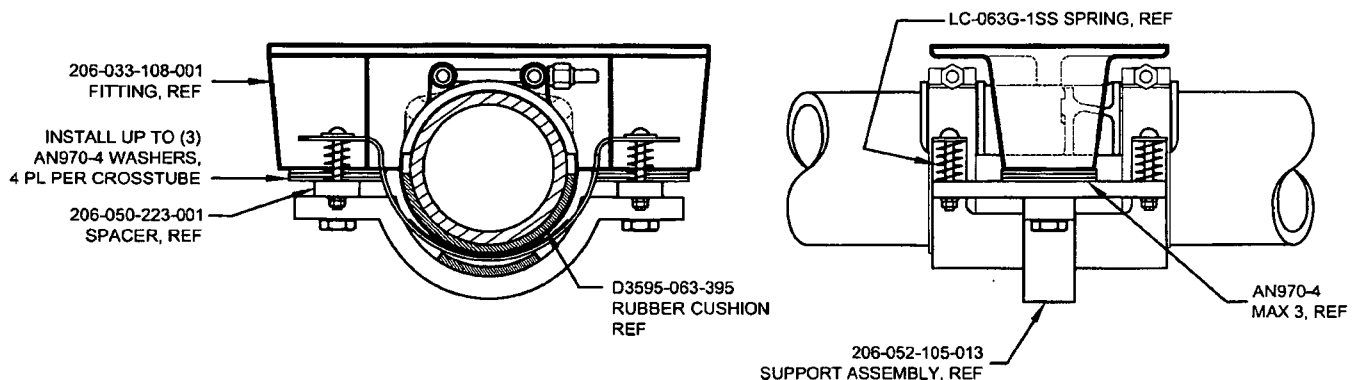
REFERENCE ONLY

## PROBLEM:

FOR D206-667-103 CROSSTUBES (206L FWD) AT CHG 003 AND SUBSEQUENT (SEE DSI 9415) PROPER INSTALLATION OF THE OEM SUPPORT ASSEMBLIES MAY BE IMPOSSIBLE DUE TO THE ADDITIONAL THICKNESS OF THE DART D3595-063-395 RUBBER CUSHIONS. THE 206-052-105-013 SUPPORT ASSEMBLY (OR EQUIVALENT) MAY SIT TOO HIGH RELATIVE TO THE 206-033-108-001 FITTING, CAUSING THE LC-063G-1SS SPRING (OR EQUIVALENT) TO BE OVERLY COMPRESSED.

## SOLUTION:

IT IS ACCEPTABLE TO LOWER THE SUPPORT ASSEMBLY BY INSTALLING UP TO QTY (3) AN970-4 WASHERS BETWEEN THE 206-033-108-001 FITTING (OR EQUIVALENT) AND THE 206-050-223-001 SPACER (OR EQUIVALENT). SEE FIGURE BELOW FOR REFERENCE.



## CROSSTUBE SECTION: SUPPORT DETAIL

## PARTS LIST:

THE FOLLOWING PARTS HAVE BEEN INCLUDED WITH D206-667-103 CROSSTUBES AT CHG 004 AND SUBSEQUENT

ITEM	Qty -103	PART NUMBER	DESCRIPTION
60	12	AN970-4	WASHER

CANADA  
DEPARTMENT OF TRANSPORT  
AIRCRAFT CERTIFICATION  
BRANCH  
DAO # 01-O-01

APPROVED  
BY: *D. Shepherd*  
D. SHEPHERD (DE # 02)

DATE: 08.12.17  
CERT. NO.: SH01-5  
ISSUE NO.: 3

A	NEW ISSUE	CP	08.12.17
REV.	DESCRIPTION	BY	DATE
DESIGN	<i>QD</i>	<b>DART AEROSPACE LTD</b> HAWKESBURY, ONTARIO, CANADA	
DRAWN	<i>QD</i>		
CHECKED	<i>PH</i>	DRAWING NO.	REV. A
MFG. APPR.	N/A	DSI 9439	SHEET 1 OF 1
APPROVED	<i>[Signature]</i>	TITLE	SCALE
DE APPR.	<i>[Signature]</i>	206L FWD XTUBE SUPPORT MOD.	NTS
DATE	08.12.17	COPYRIGHT © 2008 BY DART AEROSPACE LTD THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD.	



## LIQUID PENETRANT TEST REPORT

P- 15032

PAGE 1 OF 1

CLIENT Dart Aerospace DATE Oct 28 2010 TIME AM ☒ PM ☐  
ATTENTION Linda Lacelle ACUREN JOB NO. 188-10-0933  
ADDRESS 1270 Aberdeen St. PO/WO No. 17828  
Hawkesbury WORK LOCATION Hawkesbury  
ACCEPTANCE STD. ASTM 1417-01-038 REV./DATE 2005  
PROJECT x-Tubes # D206-667-103 & D206-667-103 BL  
ITEM(S) EXAMINED Job #s: 62310, 62743, 62744, 62600, 62601

JOB DESCRIPTION PROCEDURE NO. LT-6002 REV./DATE TECHNIQUE NO. LT-TECH 02 REV./DATE  
PART NO. D206-667-103 & D206-667-103 BL MATERIAL ALODINED ALUM THICKNESS N/A  
SCOPE WET FLOURESCENT LIQUID PENETRANT INSPECTION CARRIED OUT ON  
100% EXTERNAL SURFACE OF THE X-TUBES

## TEST DETAILS

METHOD ☒ FLUORESCENT ☐ VISIBLE ☒ WATER WASH ☐ SOLVENT REMOVABLE ☐ POST EMULSIFIED  
FAMILY BRAND Magnaflux BLACK LIGHT S/N 8178 ☐ OUTPUT > 1000  $\mu$ W/cm<sup>2</sup> ☐ AMBIENT < 2 fc  
PENETRANT ZL62 MINIMUM DWELL TIME 10-15 MIN. LIGHTING EQUIP. ☐ FLASHLIGHT ☐ TROUBLELIGHT ☐ OUTPUT > 100 fc @ SURFACE  
PENETRANT REMOVER H<sub>2</sub>O MINIMUM DRY TIME > 10 MIN. OTHER call Oct 15th 2010  
DEVELOPER SKD 52 MINIMUM DWELL TIME 10 MIN. LIGHT METER S/N CAL DUE DATE April 2011  
DEVELOPER TYPE ☒ NON AQUEOUS ☐ AQUEOUS ☐ DRY

## TEST SURFACE

SURFACE CONDITION ☒ AS GROUND ☐ AS WELDED ☐ MACHINED ☐ SHOT BLASTED ☒ CLEAN BARE METAL  
SURFACE TEMPERATURE ☐ < -4°C/ 20°F ☐ -4°C/ 20°F TO 10°C/50°F ☒ 10°C/50°F TO 52°C/125°F ☐ > 52°C/125°F

RESULTS- ( ☐ METRIC ☐ IMPERIAL )

WET FLOURESCENT LIQUID  
PENETRANT INSPECTION CARRIED  
OUT ON 100% EXTERNAL SURFACE  
ON X-TUBES:

Job #s: 62310 Acceptable  
62743 Acceptable  
62744 Acceptable  
62600 Acceptable  
62601 Acceptable

10-10-29

Scope of Services  
The agreement of Acuren Group Inc. to perform services extends only to those services provided for in writing. Under no circumstances shall such services extend beyond the performance of the requested services. It is expressly understood that all descriptions, comments and expressions of opinion reflect the opinions or observations of Acuren Group Inc. based on information and assumptions supplied by the owner/operator and are not intended nor can they be construed as representations or warranties. Acuren Group Inc. is not assuming any responsibilities of the owner/operator and the owner/operator retains complete responsibility for the engineering, manufacture, repair and use decisions as a result of the data or other information provided by Acuren Group Inc. In no event shall Acuren Group Inc.'s liability in respect of the services referred to herein exceed the amount paid for such services.

Standard of Care  
In performing the services provided, Acuren Group Inc. uses the degree, care and skill ordinarily exercised under similar circumstances by others performing such services in the same or similar locality. No other warranty, expressed or implied, is made or intended by Acuren Group Inc.

## SIGNATURES

CLIENT REPRESENTATIVE Matt Murdoch DTR # E63201  
TECHNICIAN (SIGNATURE): Fredrick Chanson REPORT REVIEWED BY:  
NAME (PRINT): FREDRICK CHANSON 1<sup>ST</sup> TECHNICIAN 2<sup>ND</sup> TECHNICIAN  
CGSB LEVEL # SNT LEVEL # CGSB LEVEL # SNT LEVEL #  
CGSB REG. NO. 10560 CGSB REG. NO. #